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The JOURNAL of GEOGRAPHY

VOLUME XLIX JANUARY, 1950 NUMBER 1

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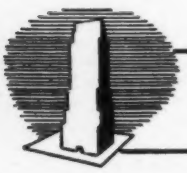

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The JOURNAL *of* GEOGRAPHY

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Mr. Ives is Instructor in Geography at Indiana University and a frequent contributor to technical publications in meteorology, geology, and field methods. During the war he carried on aeronautical research and military research in the Signal Corps and Chemical Corps. He was formerly a staff writer for *Science Service*. This paper will give the teacher an intimate picture of life in an oasis.

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VOLUME XLIX JANUARY, 1950 NUMBER 1

THE SONOYTA OASIS

RONALD L. IVES
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INTRODUCTION

Recent studies of Mexico, and of Mexican life, have been concerned largely with the central plateau area, and, in large part, have neglected the numerous smaller communities in the arid northern part of the Republic. Many studies of Mexico, also, have overemphasized the strange, exotic, and weird cultural and religious developments in a very few isolated mountain villages, and have neglected the large number of Mexican communities which, because of stable government and economy, do not figure regularly in the news.

This misplacement of emphasis has created the impression, in some circles, that Mexico is an interesting land, where everything is done in a peculiar, or even psychotic, manner; and where straight-forward, sensible, normal methods are not used. Such an impression is not only false, but most unfortunate, for the average Mexican community is a thoroly orderly social and economic entity, in which life goes smoothly and pleasantly; much as it does in the average community in most other parts of the world.

Representative of a large number of northern Mexican communities is Sonoyta, Sonora, a town having a long pre-history, amply demonstrated by archaeological evidence: and a written history dating back to 1698, when Eusebio Francisco Kino, the "Apostle to the Pimas," visited the settlement, introduced cattle-raising, and built the San Marzelo Sonoita Mission. Material to be presented here was collected during the period 1931-1946, inclusive, and has been augmented considerably by inclusion of statistical data supplied by the Mexican Government.

FIG. 1. Summary map of the borderlands between the Gila and Altar rivers, showing location of Sonoyta.

LOCATION AND ACCESSIBILITY

Sonoyta[1] is centrally located on the course of the Sonoyta River, a small desert stream which rises on the west side of the Baboquiviri Range, west of Tucson, Arizona, and evaporates on an inland delta east of the Pinacate Lava Flows; at latitude 31°50′ N.; longitude 112°51′ W.; altitude 1155′ above MSL, approximately.

By road, Sonoyta is about 40 miles south of Ajo, Arizona; 116 miles west of Nogales, Arizona—Sonora; 112 miles east of San

[1] The name *Sonoyta,* which is rendered *Sonoita* on many Mexican maps, and *Sonoitac* in the older mission documents, is apparently derived from the Papago descriptive terms *Kávortkson* (*Kávortk* = rounded hill: *son* = at the foot of), commonly degraded to *son;* and *óitac* (*óitac* = fields).

Luis, Sonora, on the Colorado River; and 102 miles northwest of Altar, Sonora, regional administrative center.

Until road improvements were made about 1925, Sonoyta was a two-day horseback trip, or a three-day wagon journey, from the railhead at Ajo, Arizona. Now, in most seasons, the journey takes two hours. Rapid travel in the region is now possible via the Altar —Sonoyta—San Luis airline, reportedly operating on a twice-a-week each way schedule; and bus travel from Sonoyta to any Mexican point is now possible almost daily.

Location of Sonoyta with regard to major physiographic features, principal roads and railroads, and political boundaries, is shown in Fig. 1.

PHYSICAL SETTING

Sonoyta is located in a pocket, between several groups of fault-block mountains. To the north, the volcanic Sierra de Sonoita rises more than 1,000 feet above the townsite; and to the south the granite and schist Sierra de Cubabi rises more than 4,000 feet. Outliers of both ranges form a partial enclosure to the east of the present townsite.

Bifurcating this scoop-shaped depression is the channel of the Sonoyta River, which is deeply trenched in bedrock to within a few miles of the townsite on the east, and shallowly trenched into alluvium to the west.

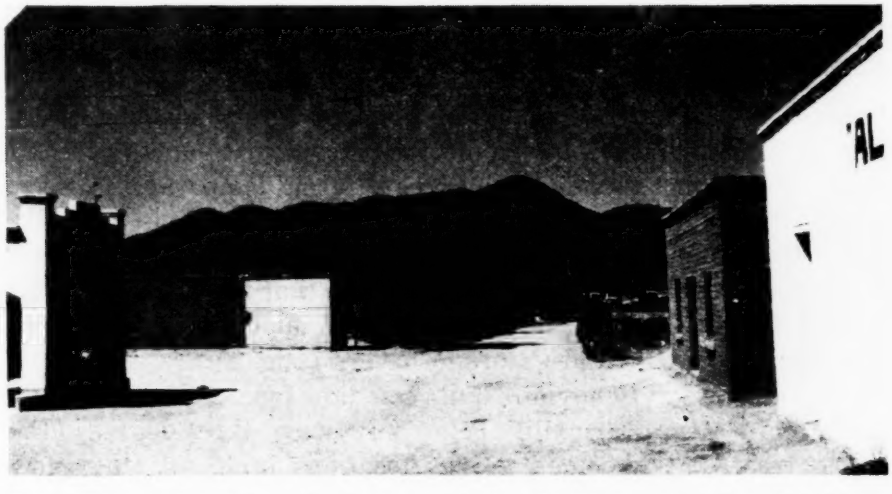

FIG. 2. View northward from the Sonoyta townsite, showing houses at the edge of town, fields, and the Sierra de Sonoyta in the background. The river bed is just beyond the more distant trees.

The Sonoyta townsite occupies a large constructional flat, composed of recent alluvium, with excellent subdrainage. This flat is gradually thickening, growth since man came to the area being in excess of 30 feet, as is indicated by the depth at which some artifacts are found. General relation of agricultural areas to mountains at the Sonoyta townsite is shown in Fig. 2.

CLIMATE

The climate of the Sonoyta area is remarkably like that of Phoenix, Arizona, with about the same magnitude and distribution of both temperature and rainfall. Mean annual temperature is

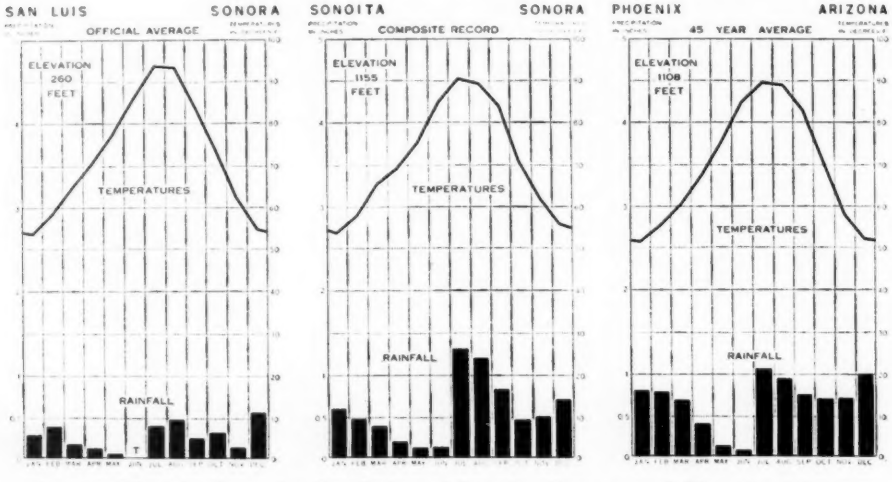

FIG. 3. Climatic charts for San Luis and Sonoita, Sonora; and Phoenix, Arizona.

about 71.6° F.; mean annual rainfall is close to 6.57 inches. Freezing weather and snow are almost unknown in Sonoyta: the hot summer weather is tempered by great diurnal temperature ranges, fairly steady gentle breezes, and moderate relative humidity. Sonoyta is definitely not a summer resort, but summer heat there is not only not intolerable, but is less than that at San Luis, on the Colorado River, or at Yuma, Arizona, a populous settlement at the junction of the Gila and Colorado Rivers (Fig. 1).

Temperature at Sonoyta is quite constant from year to year, the mean temperature variability being only two or three degrees (F.). In contrast, but like many other locations in the southwestern United States and northwestern Mexico, rainfall is extremely variable from year to year in both magnitude and distribution.

A dual rainfall regime is commonly noted in the Sonoyta area. During the winter, there are frequent light showers, an inland manifestation of the "Mediterranean" rainfall regime of the Pacific Coast area. During the summer, particularly the late summer, there are usually several violent rain squalls, caused by precipitation from northward-moving tropical air, uplifted by weak fronts or by passage over terrain, as well as by convection. The summer rainfall regime is very weakly monsoonal.

Complicating the climatic picture are occasional tropical hurricanes, which travel northward up the Gulf of California from the vicinity of the Gulf of Darien, where they apparently originate; and then sweep inland where the Gulf narrows, and "northers," which are outbreaks of very cold air from the Great Basin and Rocky Mountain region, usually occurring during the winter. Climatic summaries for Sonoyta and two other typical desert stations comprise Fig. 3.[2]

WATER SUPPLY

Because of scanty rainfall, agricultural settlements in the American southwest and the Mexican northwest are entirely dependent on irrigation, and all major townsites, with the exception of a very few mining communities, where the value of the ore is sufficient to justify a long water haul, are found at locations where water supply conditions are comparatively favorable.

The present water supply of the Sonoyta Oasis results from the effective use of a large natural porosity reservoir. Much of the rainfall upon the Sonoyta watershed, east of the Sierra de Cubabi, soaks into the ground, saturating a bed of coarse porous alluvium having an areal extent of more than 1,000 square miles. A part of this water rises in the soil by capillarity, and is lost by evaporation. The remaining water can escape from the buried porosity reservoir (a geological sponge) only by flowing outward thru the deep rock-floored channel of the Sonoyta River where it crosses the northeastern outliers of the Sierra de Cubabi. At this point, in prehistoric times, and at present, inhabitants of the Sonoyta Oasis divert the runoff from the river channel into the ditch system by means of a small dam, and conduct the water, by various distributary ditches, to their fields and to the townsite.

[2] Climatic data here presented were obtained from the Servicio Meteorologico Mexicano, the U. S. Weather Bureau, the Desert Botanical Laboratory, and field measurements.

Constant systematic maintenance and cleaning keep the quantity and quality of the water close to maximum attainable. Analysis of water from the ditch in the center of Sonoyta shows that the bacterial content of the water is quite low, and supports the Comisario's statement that "we keep the ditch as clean as possible."

Within the last fifteen years, a number of wells have been dug near the town to supply additional water in dry years. This water,

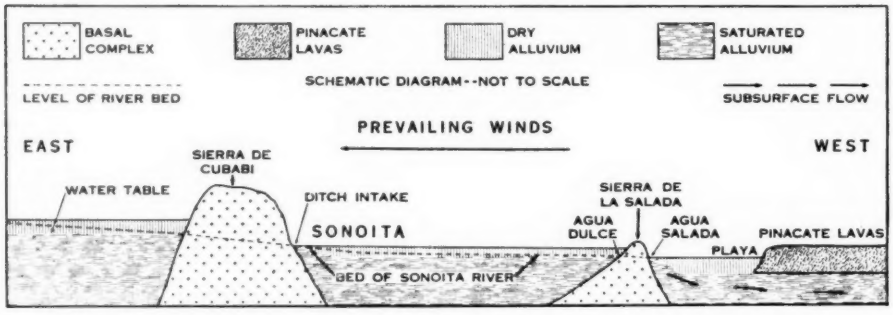

FIG. 4. Geological section of the Sonoyta Valley, showing relation of pervious and impervious strata, and position of water table.

which is cooler than ditch water, and has a slightly lower bacterial content, contains considerable alkali and fluorine.

A similar geological situation exists about fifteen miles west of the Sonoyta townsite, at Agua Dulce, the last source of potable water east of the Pinacate lava flows. Beyond this point, the subsurface flow is apparently thru buried channels under the lava; water of about the same chemical content appearing in surface and submarine springs along the Sonoran shore of the Gulf of California. Both geological and ichthyological evidence suggest that the Sonoyta River once flowed almost due west, and was diverted, west of Auga Dulce, by the great outpourings of lava from Pinacate Volcano. The southward-trending surface channel of the present Sonoyta River, below Auga Dulce, is dry except during the occasional floods.

Geological conditions making possible continuous irrigation at Sonoyta are outlined in Fig. 4. Because of the great size of the porosity reservoir, the outflow east of Sonoyta is substantially constant, so that crop failures due to water shortage are uncommon. After a series of dry years, the flow may become very scanty, but there is no record that the supply has ever failed completely.

POPULATION

Population of Sonoyta at present is about 800, of whom most are permanent or long-time residents. There is some seasonal variation, because operators of outlying mines and ranches may spend part of the year in Sonoyta, and the remainder in the field.

Original inhabitants of the Sonoyta Oasis were Papago Indians, who developed irrigation agriculture in the region more than 1,000 years ago. After the establishment of the San Marzelo Mission, in 1698, cattle raising was introduced, raising the supporting power of the environment. Settlement of the area by Spanish pioneers began about 1700. Today, in the Sonoyta area, inhabitants having various mixtures of Indian and Spanish blood can be found, with a few who are apparently pure Spanish, and more who are probably pure Indian. Because both parent stocks were sound, and there is no racial prejudice, the resultant Spanish-Indian mixture is a thoroly normal and healthy human. In fact, in at least some instances, it appears that the mestizo is better adapted to the environment than either the Indian or the Spaniard, in part, perhaps, because of "hybrid vigor."

Despite a somewhat difficult environment, the unavoidable hazards of living under pioneer conditions, and lack of medical attention, the people of Sonoyta are not only healthy but long-lived. Notable also is the maintenance of physical and mental vigor to a great age.

ECONOMIC ACTIVITIES

All activities in Sonoyta depend, directly or indirectly, upon agriculture. In consequence, farming is the principal activity, and nearly all of the permanent residents engage in some form of farm activity.

Principal crops are corn, melons, squash, and beans; minor crops, produced largely for home consumption, include a wide variety of greens, various types of peppers, carrots, onions, and other "kitchen garden" crops. Area in crop, in most years, is about two square miles, the exact area depending upon the water supply, market conditions, and availability of seed and labor.

Cattle-raising is a secondary industry in the area, and produces not only enough beef for local use, but usually a surplus for sale. Cattle are raised in those parts of the oasis that are not suitable for irrigation, but which have some vegetation. Sheep, goats, pigs,

Fig. 5. Crossing the Sonoyta ford during a low-water period in the rainy season. At its highest, the river submerges the river banks in the background. Vehicles on the far bank are waiting their turn to be towed across.

and chickens are raised for local use, but not for market.

Processing of the medium to low grade metallic ores found in pockets in the mountains near Sonoyta furnishes a slack-season occupation for some of the inhabitants. Altho the mineral wealth of Sonora is great, it is unfortunately distributed, most of the ores being too far from water and present day transportation to permit profitable mining. Occasional pockets of high-grade ore, however, are so rich that they can be worked, and the proceeds from the sale of a few tons of high-grade may be sufficient to pay not only for mining, hand-picking, back-packing to the end of the road, haulage to water, concentration, freight to smelter and customs duties, but also to pay a gratifying profit. Those who make money from this type of mining really earn it.

Because of distance to markets, and distance to the railroad, the transportation industry is important to Sonoyta. Many fami-

lies own one or more motor vehicles, which permit hauling surplus crops to market, and importation of manufactured goods. Heavy freighting is done by commercial truckers who, given the proper fee, can "go to Hell and bring the Devil back." Freighting between points in the United States and Sonoyta is made somewhat difficult because of the ford of the Sonoyta River, just north of town. During the dry season, the crossing is just difficult, a new roadway being dug each year. During the wetter parts of the summer rainy season, the river rises as much as 30 feet, and the town is inaccessible from the north for several days at a time. Before the waters rise too high, and when the floods are declining, vehicles are hauled across the flooded roadway by use of a long cable and a tractor on dry land, as in Fig. 5. Construction of a bridge at this site would cost more than the assessed valuation of all of Sonoyta's buildings.

Recent construction of a military road from Sonoyta to the railhead and roadstead of Puerto Peñasco, on the Gulf of Cali-

FIG. 6. A Mexicali stage in front of the Immigration Office in Sonoyta during a lunch stop for the passengers. Note the extra tanks for water and gas. It is about 125 miles in either direction from Sonoyta to the next gas station along the border. Quality of service should not be judged by the appearance of the vehicles. The service is quite good, and the drivers are expert mechanics, able to repair almost any type of breakdown en route.

fornia, has more than doubled truck traffic thru Sonoyta, so that the town has become a refueling point and rest stop for drivers who haul fish from the Gulf to markets in the United States. Many of the fish trucks, instead of returning empty to Puerto Peñasco, bring loads of ice, groceries, or lumber to Sonoyta and other points en route, making their haul both ways profitable, in some instances.

Passenger traffic east and west thru Sonoyta is quite heavy, the settlement being the last inhabited place before the Colorado River is reached. The trail from Sonoyta to the Colorado River, one of the most barren stretches of road in North America, is locally known as the *Camino del Diablo.* One of the stages that travel this perilous highway is shown in Fig. 6.

Service industries in Sonoyta include two stores, four or five restaurants, a filling station, and a small ore mill (west of town). Because all members of a family commonly live together, and share the work of the household and farm, few servants are needed in Sonoyta, and all members of a family, from the very young children to the great-grandparents, have definite places in the family economy.

Professional workers include the customs and border patrol officers, the postmaster-radio operator, the school teacher and the *comisario.* There is no resident physician and no resident priest. Many of the residents are skilled in first aid and elementary diagnosis, so that most simple ailments are treated locally. The seriously ill are taken to Ajo (Arizona) or Caborca (Sonora) for treatment. Medical advice, in an emergency, is obtained by radio, and medicines are delivered promptly and gratis by truckers or by members of the border patrol.

Political and Social Life

Government of Sonoyta is largely vested in the *Comisario,* an elected official with wide discretionary powers, whose duties include those of sheriff and mayor in most villages in the United States. By custom, the *comisario* cannot succeed himself. Because the work is difficult, the responsibilities heavy, and the pay low, most Mexicans regard the office as a civic duty, to be performed once well, and then relinquished. The *comisario* is usually a man of great ability, who combines the character traits of a frontier peace officer with those of a working diplomat. For more than two decades, the people of Sonoyta have elected competent *comisarios,*

so that the present city administration runs very smoothly, with strong popular support and cooperation. The *comisario* appoints such deputies as he needs, and these men perform their duties with great skill and diligence.

Because Sonoyta is an orderly town, with a well-integrated population, no extensive court system has been found necessary. Minor misdemeanors are judged by the *comisario,* who guides his verdicts by the recent new Mexican legal code. There is a small jail in Sonoyta (the "juzgado civil"), which is usually vacant, or has a short-term occupant who is sleeping off a too energetic celebration. Most civil cases are settled by the local judge, who functions chiefly as an arbiter. For more than four decades, most civil disputes in the Sonoyta area have been settled by Judge Traino Quiroz, who is know thruout Sonora for his fairness and good sense. Serious criminal and civil cases are tried in Caborca, the district administrative center.

Education in Sonoyta is in charge of the school teacher, who conducts a one-room Federal school, poorly equipped by United States standards, but effective in combating illiteracy. Because most of the teachers work with an almost fanatical zeal, and the average Sonoran of today wants to learn, the amount of education obtained per Peso spent is surprisingly large. Because of a mixed linguistic environment, many residents of Sonoyta speak Spanish and English with equal facility, and a few are also proficient in Papago, or other Indian languages. It is customary, in many parts of Sonora, to speak to each person in his own language, a most helpful courtesy, which results in great understanding, provided the speaker is truly competent in all languages used.

Because of the noonday heat, the working day commonly begins at sunrise, and continues until about noon. From lunch time until mid-afternoon, most of the people rest, or work indoors; and then, as it becomes cooler, the remainder of the day's work is completed. The "siesta," which is seldom spent in sleeping, is a physical necessity, not just an excuse not to work (Fig. 7).

Social activities in Sonoyta are largely family affairs. There is no theater, woman's club, or bowling alley, and little need for any of these. Despite the absence of these "essential" recreations, however, there is no lack of recreation. As in pioneer communities in the United States, everyone who is able takes part in the building of a new house, helps with repair work, and lends a hand in

getting loaded trucks across the river bed when the water is high.

Visiting among the women, who customarily do not do the harder work in the fields, is frequent; and in such gatherings there is the customary amount of gossip. Notable by its absence, however, is the vicious meddling in the affairs of others that is common in some small communities in the United States.

Fiestas, to celebrate important national holidays and some religious holidays, are participated in by most of the population. It

FIG. 7. Resting in the shade during the early afternoon heat. It is customary in Sonoyta, during the summer, to do most of the hard work of the day between dawn and noon, and then to rest during the hottest part of the day. Remaining work is done in late afternoon and early evening. Note the brilliant sunlight in the foreground.

is notable, during such celebrations, that the people are very democratic, friendly, and orderly: a condition in marked contrast to large assemblages in the United States.

Occurring at almost weekly intervals, alternately at Ajo and Sonoyta thruout the spring, summer, and early fall, are the baseball games between town teams. These, widely attended and energetically played, are as interesting as any big-league games. Interest is great, because all of the players are known to most of the spectators, who take personal pride in the achievements of their team. During the drier parts of the year, the umpire wishes for X-ray eyes, to see thru the dust.

Most of the inhabitants of Sonoyta are nominally Roman Catholic; all follow Christian rules of behavior and ethics. The courtesy of Old Spain is followed in most social contacts, altho, in the field, the similar customs of the Papago Indians may be used. As both types of social usage are suited to the environment, there

are few misunderstandings. A few of the younger residents of Sonoyta have learned bad manners from American tourists, and are sharply reproved therefor by their elders.

Life in Sonoyta commonly proceeds in a quiet and orderly fashion, with little friction or disturbance, but also with few idle moments. The major part of each day is necessarily devoted to work, much of it hard. In Sonoyta, the eight hour day and the forty hour week are unheard of. To make a satisfactory living, it is necessary to work each day until the necessary work is done, and that usually takes twelve hours!

FUTURE OUTLOOK

For the first 1,000 years or more of its history, the Sonoyta Oasis was an almost completely isolated Indian Camp, and was, in consequence, almost entirely self-sufficient. After the establishment of the San Marzelo Mission, by Eusebio Kino, in 1698, some regular outside contacts were established, but virtual self-sufficiency was maintained until about 1920.

In recent years, with transportation improvements, Sonoyta has tended to become a supply and transfer point, with increasing trade and travel. Today, with the virtual completion of the Sonoran Railroad, the paving of the military highway from Ajo (Arizona) to Puerto Peñasco (Sonora), the finding of water at usuable depths in several adjacent desert areas, and increasing prices for corn in world markets, it appears that Sonoyta, while maintaining its agricultural production, will become an increasingly important transfer and trade point.

Altho some competition to Sonoyta businesses is furnished by the recent construction of a small town about a well at Dowling, on the border, about two miles north of Sonoyta, the increase in trade and travel is such that there is enough business for all. Travel to the Organ Pipe Cactus National Monument, in Arizona, not far from Sonoyta; and revival of the search for minerals in Sonora; all tend to bring increasing business to Sonoyta merchants, and to increase the demand for local foodstuffs.

These changes are enough to upset the culture and economy of many small communities, but it appears that Sonoyta, if changed at all, will be changed for the better. The inhabitants are inherently healthy, industrious, psychologically stable, and extremely adaptable. Desert people must be. Their motivations are sound—they are determined to give their children a better start in life than they

had, and are willing to work very hard to accomplish that end. Altho three languages are spoken in the area, and three cultures merge there, the similarities in the cultures are more numerous than the differences, so that friendly contacts and sound business relations are, and can continue to be, maintained. Language differences vanish when almost the entire population is bilingual, as is the case in most of the Arizona-Sonora borderland.

Collateral References

Bolton, H. E. *Kino's Historical Memoir of Pimeria Alta,* Berkeley, 1948 (One-volume translation of the diaries of Eusebio Francisco Kino, who explored the Sonoran Desert in 1680-1710).

Hornaday, W. T. *Campfires on Desert and Lava,* New York, 1910.

Lumholtz, Carl, *New Trails in Mexico,* New York, 1912.

Ives, R. L. *The Discovery of Pinacate Volcano,* Sci. Mo. Vol. 54, 1942, 230-238.

SOME PRINCIPLES AND LAWS OF ECONOMIC GEOGRAPHY

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Development of Economic Geography

Economic geography, or *geonomics* as it is sometimes called, obtained its start during the latter part of the eighteenth century when Immanuel Kant in Germany pointed out the existence of a field of geography which he termed "Mercantile Geography." At about that same time, Adam Smith in England was publishing his *Wealth of Nations.*[1]

From that time on, economics grew vigorously, but economic geography was relatively neglected for nearly a century. Then, beginning with George G. Chisholm in Britain[2] and J. Russell Smith in the United States,[3] economic geography developed rapidly. Today, in America at least, it is the dominant aspect of geography.

Descriptive and Factual Studies

During the past four decades, a wide variety of specific studies, as well as a considerable number of textbooks and other general

[1] By some students, this is considered to mark the real beginning of modern economics. Others would set that point a decade earlier with the publication of A. R. J. Turgot's *Reflexions sur la formation et la distribution des richesses,* or even still earlier with the beginning of the physiocratic school of thought.

[2] *Handbook of Commercial Geography,* 1889.

[3] *Industrial and Commercial Geography,* 1913.

works on economic geography, have appeared. Today, altho there is in existence a large volume of geonomic literature, the works composing this literature consist predominantly of either description or exposition, and they generally lack any clear statement of theory and principle. Indeed, some economic geographers appear to have regarded their field as lacking in basic principles and laws, implying that altho economics exhibits many valid generalizations, economic geography is, per se, largely descriptive and factual. This implication is probably the result of the relative immaturity of the latter subject.

GENERALIZATIONS

Economic geography has, however, evolved to the point where at least a tentative statement of its basic generalizations can be made. Some of these are principles or underlying tendencies which would seem to be valid under all conditions. Some of them, however, are laws[4] which would seem either to operate quantitatively or to involve cause-and-effect relations under specific conditions within the framework of one or another of these principles.

At the outset, it should be noted that there are four basic principles, as follows:

The Principle of Geonomic Relationship
The Principle of Optimum Location
The Principle of Regional Specialization
The Principle of Geonomic Succession

In the paragraphs which follow, each of these is discussed, together with the several laws which would appear to operate under each.

THE PRINCIPLE OF GEONOMIC RELATIONSHIP

It is a truism that the two considerations in economic geography are man and his technology on the one hand and the natural elements (i.e. the natural forces, processes, and resources) on the other hand. These latter combine in an endless variety of ways to create the natural environment which everywhere constitutes both a foundation for and a limitation upon human society—offering encouragement here, hindrance there. To the quality and peculiar character of this natural environment, man locally and regionally adapts his patterns of industries, economic constructions, and business institutions. Out of this fact, arises the most fundamental

[4] In so far as any social science can be said to possess laws or centralizing tendencies.

phenomenon in economic geography, namely *geonomic relationship.*

Industries, that is productive economic activities, are the foundation of human society. Mankind is able to exist only because it has learned to produce economic goods via these industries. Production is, however, only a more or less complicated process in which man uses the natural environment to obtain the necessaries of life. Each different kind of industry, therefore, represents man's establishing relations to specific natural processes and resources selected from the natural environment. Thus, all of man's occupations and economic institutions have arisen out of human adjustments to Nature.

These, however, do not arise arbitrarily or haphazardly, but instead tend to follow the general Principle of Geonomic Relationship, as follows:

Every industry represents the capitalization by man of some element or combination of elements in the natural environment. The choice of industry and the success with which it is prosecuted depends upon the quality of the local resources balanced against the level and effectiveness of the available technology.

The Law of Primacy in Resource Use

Economic production is not a simple matter of establishing indiscriminate use relations between man and natural resources. The value of the latter are highly variable. Consequently, what lands are brought under cultivation, what pieces of forest are cut, or what mineral deposits are mined is decided by a very complicated process of choosing and rejecting by man.

Any natural resource possesses value because of two qualities, richness and location. The amount of really rich grades of any natural resource is decidely limited, a circumstance which is reflected in the order in which man selects the various grades of it for utilization. Indeed, this may be stated formally as the so-called Law of Maximum Productivity or the Law of Primacy in Resource Use. This is as follows:

In all primitive economies, and in present day local economies not yet fully invaded by modern means of transportation, those resources possessing the greatest richness of fertility tend to be exploited first.

The Law of Accessibility

Improvements in transportation have, however, caused the rapid spread of competitive exchange economy. Under the stress of such an economy, the spread of a power-and-machine technology has also

been rapid. Improved transportation has made available many natural resources which were formerly inaccessible, but it has also made available fertilizer, selective breeding, more efficient smelting, improved marketing and all such forms of capital, also. Under their onslaught, the Law of Primacy in Resources Use is being weakened and what might be called the Law of Accessibility is tending to supplant it. This is:

Under an exchange economy, lower-grade resources, if readily accessible to a large market can be utilized profitably, while richer grades of resources, less accessible, remain unexploited.

The Principle of Optimum Location

Quite apart from the question of the selective exploitation of natural resources is the problem of what localizes industries and, in many instances, locates them on specific sites. Every industry (productive economic activity) requires for its prosection some six ingredients or component elements: capital, labor, market, power, raw materials, and transportation. Obviously, it is an advantage for the industry to be as near to these as possible.

This advantage is expressed in the Principle of Optimum Location.

Any industry tends to locate upon a site which provides optimum access to its ingredient elements. If all these elements occur close together, the location of the industry is pre-determined. If, however, they occur widely separated, the industry will be so placed as to be most accessible to that element which would be most expensive or most difficult to transport, and which becomes, therefore, the locative factor for the industry in question.

The Law of Location for Extractive Industries

There are in general four great classes of industry, of which the extractive class is geonomically the simplest. The law governing the localization of such activities is as follows:

The extractive industries are, and must continue to be located by the occurrence of their raw materials.

As a corollary, it may be said that in connection with most industries of this kind, the Law of Accessibility dictates that raw materials nearer to market will be exploited before those lying farther away, and that large areas of forest, grassland, and wild game shelter will be destroyed and replaced by more productive land uses.

The Law of Location for Reproductive Industries

Agricultural and other reproductive industries fall into two groups, those which produce staples, and those which produce perishable commodities. The law governing their localization is:

Reproductive industries which produce staple commodities are localized by raw-material factors, i.e. by nature-made conditions operating under the Law of Comparative Advantage.[5] Those which produce perishable commodities tend to locate close to their markets even under the handicap of increased costs.

The Law of Location for Facilitative Industries

The facilitative industries include transporting, financing, and the "services." Their localization may be expressed in the following terms:

The facilitative industries tend to be located almost entirely by the distribution of markets for their services or utilities.

The Law of Location for Manufactural Industry

The law governing the localization of the fabricative activities is most complex of all. Briefly it may be stated as follows:

Any manufactural industry tends to locate at a point which provides optimum access to its ingredient elements. It will, therefore, seek a site near to—

(a) *raw materials*, if it uses perishable or highly condensable raw substances,

(b) *market*, where the processing adds fragility, perishability, weight, or bulk to the raw materials, or where its products are subject to rapid changes in style, design or technological character, or

(c) *power*, where mechanical energy costs of processing are the chief item in the total cost of fabrication, or

(d) *labor*, where the wages paid to skilled artisans are a large item in the total cost of fabrication.

To this, one might add that *capital* and *labor of management* are locative only during industrial youth of a region, and *transportation* facilities are locative only during economic old age of a region—and then only for miscellaneous industries.

The Principle of Regional Specialization

The elements of the natural environment are not evenly distributed over the earth's surface. In different sections, they are arranged in very different combinations. This means that the earth's surface and even the surface of a country such as the

[5] This law is discussed later in this paper. The Law of Comparative Advantage can be transgressed to a degree depending upon the amount of tariff protection provided by political action.

United States is a mosaic of unlike natural regions. Since these regions differ, man must perforce follow different patterns in adjusting his living to the natural environment in these unlike regions. Eventually, the patterns of human construction and business which he establishes, differ markedly from one region to another. As a result of this process of differentiation, economic activity in one region is often quite different from that in other regions.

This may be expressed in the following generalization:

As commercial competition increases, any region will, unless prevented from doing so by political controls, tend to specialize in the production of those commodities for which it possesses a natural or technological advantage.

The Law of Comparative Advantage

The development of means for transporting products widely, together with the creation of a fairly constant market for a great variety of commodities, has largely destroyed the need for regional self-sufficiency. If a region can produce on a large scale, one item for which there is a general demand over the earth, and if it can get that item to market, it can with the resulting income, purchase everything else which it needs. There is, then, a general tendency among all advanced regions to move increasingly toward an economy of specialization. Each region tends in the direction of producing one or several commodities for which it possesses natural or technological aptitudes. This process of regional specialization tends to obey what has been called the Law of Comparative Advantage:

Wherever there are several alternative uses for land or other natural resources, that use which is most advantageous or productive will be selected.

The Four Laws of Trade

It is obvious that the further the Principle of Regional Specialization is extended, the greater will be the necessity for specialized regions to increase their trade with one another. Trade is not haphazard nor whimsical, however, but tends to obey the following four laws of trade.

First Law of Trade (Law of Trade Origin).

Trade is created by the existence of surpluses of different commodities. Differences in commodities are, in turn occasioned by

(a) differences in culture,

(b) differences in natural resources, and

(c) differences in the geonomic stage of development.

The greater are the differences in commodities, the more impelling the inducement to trade.

Second Law of Trade (Law of Trade Change)

As population increases and economic development progresses, geonomic readjustments are made within a region, and the character of the commodities which are exported changes.

Third Law of Trade (Law of Trade Direction)

As commercial relations are extended, trade based upon cultural and economic-geographic differences tends to decline whereas trade resting upon resource differences tends to become accentuated. Consequently, predominantly east-west flows of trade tend to become predominantly north-south flows.

Fourth Law of Trade (Law of Trade Volume)

The volume of commerce moving over any trade route varies directly with the size of the surpluses of goods and inversely with the physical barriers and the political restrictions.

The Principle of Geonomic Succession

The end result of the operation of the Law of Comparative Advantage is to produce what has often been termed the *geographical division of labor.* This has already progressed to where a large amount of regional specialization has occurred and a huge growth of trade has followed.

Any geographical division of labor is, however, a very fragile arrangement and is very susceptible to change. Indeed, it is a general truth that the economic value of any particular area is subject to change in response to population increase, technological advancement, or the discovery or depletion of natural resources.

When the population of a tribe of primitive food gatherers increases to a point where hunting cannot provide an adequate food supply, the more resourceful members of the tribe will capture wild animals, breed them in captivity, and establish ownership over water holes and range grass. Eventually, the tribe shifts its geographic relations from the biota, to water holes and grassland thru the medium of domesticated animals. If human numbers continue to increase, another geonomic readjustment will be made. This time, relations to soil, climate, and landforms may be established and an agricultural adjustment made. This kind of adjustment and readjustment has been made often enough in history to suggest the operation of an underlying principle. It is often referred to as the Principle of Geonomic Succession.

Stated as briefly as possible this is:

As population increases, any human society tends to shift its geonomic dependence from one set of environmental elements to a more productive set of elements.

Conversely, where population decreases, human society tends to shift its geonomic dependence to a less productive set of elements.

The Malthusian Law

The population of any country, region or locality is the most important factor in the economic life of that area. Moreover, because population has a tendency to grow in numbers, it tends also to exert an increasing pressure upon the natural resources of the area which it inhabits. The ratio of human numbers to the quantity of resources at man's disposal, or as it is usually called, the man-land ratio, has long been the subject of widespread interest.

The law governing the man-land ratio, i.e. the Law of Biostatic Pressure, or as it is more often called, the Malthusian Law reveals that:

> Human numbers tend to increase by geometrical progression whereas the means of subsistence tend to increase by arithmetical pregression; and therefore the population (unless checked voluntarily) will outrun the food supply to the point where further increase will be prevented by malnutrition, starvation, or pestilence.

The Law of Diminishing Returns

Even without the profound effects of major inventions or of resource discoveries and depletions, the weight of swelling numbers within an area is sufficient to compel a more intensive exploitation of those resources which the inhabitants are utilizing for their support. This involves additional applications of labor and capital to the resources in question.

For each successive application of labor or capital, an enhanced production of goods is obtained. The increase in production, however, after a time gets smaller and smaller until finally a point is reached where the increase is worth less than the additional labor or capital applied. From that point on, more production can be obtained, but only at the expense of a net loss. Stated formally, this Law of Diminishing Returns is:

> There is a point in the application of labor and capital to the exploitation of natural resources, beyond which further application yields less than a proportionate increase in production.

CONCLUSION

The seventeen principles and laws which have been discussed in the foregoing pages, are admittedly an incomplete list of the generalizations of economic geography. Two of them, the Malthusian Law and the Law of Diminishing Returns, are already well known from economic literature. Most of the remaining fifteen have appeared in one form or another, either explicitly or by implication, in the literature of geonomics. The writer has here

attempted to formulate some of them and to restate and amplify others. A very large amount of additional mental labor on the part of many geographers will be necessary before all of the geonomic principles and laws can be formulated and stated in final form.

Meanwhile, this tentative statement of the simpler generalizations should prove valuable to teachers by providing them with the means for directing and sharpening their teaching of economic geography.

WORLD PATTERNS IN HIGH SCHOOL GEOGRAPHY*

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As yet geography is not a usual subject in the high school curriculum altho interest in high school geography has been steadily increasing. Far too many of our school administrators and curriculum makers still think that all necessary geographic knowledge and skills can be taught in the first six grades. This attitude continues in spite of the lessons learned thru bitter experience during the last war. The increased interest in geography in both junior and senior high school is due primarily to the interest of the public and to public pressure. Consequently, curriculum committees are asking, "What geography should be taught in the high school?"

In this paper I am not proposing a complete high school geography program. I am discussing only some geographic world patterns which should be developed as a "world frame of reference" during the six years of high school.

WHY WORLD PATTERNS IN THE HIGH SCHOOL?

Today we must think in global terms. The interrelations of the world community are recognized even by the man in the street. However, the concept of the interdependence of the lands and peoples of the world is not fully understood even tho the phrase has become commonplace. It has not become sufficiently meaningful as to change peoples' thinking and their attitudes. Consequently, people are constantly expressing one viewpoint but acting upon a

* Presented at the Cleveland meeting of the National Council of Geography Teachers, November, 1949.

completely opposite view. The fact behind such inconsistency in word and action is due, in part, to the lack of any basic world patterns with which to think. The majority of people cannot think clearly even in terms of simple location, let alone in terms of the significance of location or the interrelationships of location. They lack any world frame of reference. This lack is found in all levels of society from the statesman to the ranks of the ordinary citizen. Since man today is living and working in a world environment he needs sufficient knowledge of the world to overcome this inconsistency of word and action. This knowledge of the world must be organized and not a mass of isolated facts. It must be in the form of world patterns which he can use constantly in his daily life. Due to modern means of transportation and communication man is less dependent and consequently less limited by his local environment, but he has become not only more dependent upon the conditions in the whole world but also is subject more to world limitations. Man has acquired not only great opportunities but also has greater responsibilities and a new type of limitation.

In part as a result of having to adjust to a global environment, the average individual has developed a feeling of insecurity and frustration. He cannot see his place in the world. If he learns to visualize and understand a few of the basic world patterns, then he will gradually gain a feeling of greater security, of at-homeness in the world.

WHAT ARE SOME WORLD PATTERNS?

There are nature-made world patterns and man-made world patterns. The nature-made patterns have given unity to the earth since the beginning of time. Some of the nature-made patterns are:

1. The continents and the oceans with their circulation systems;
2. The world climatic pattern which was recognized by the early geographers as giving unity to the earth;
3. The world vegetation pattern;
4. The world pattern of natural resources;
5. The world soil pattern and others.

Some man-made patterns thru which man has given unity to the world are:

1. Distribution of population;
2. World pattern of occupation tied together by world pattern of trade, transportation, and communication;
3. World political pattern.

Three of these world patterns are so basic as frames of reference today that every high school student should be given the opportunity to acquire them. In the process of developing the three basic world patterns others are used until they also become a part of the mental equipment of the student. The three basic world patterns are: the climatic pattern; the world occupation or the industry and trade pattern; and the world political pattern.

World Climatic Pattern

The world climatic pattern is basic because the man-made patterns and also some of the nature-made patterns are so closely related to it. Furthermore it reveals one way in which the world functions as a physical unit. The arrangement or pattern of world climatic regions is not an accident or the result of mere chance. The location and the characteristics of the various climatic regions are the result of the interaction of a number of scientific laws and principles. As the student studies the climatic regions of the world, he becomes aware of their orderly arrangement and gains an initial understanding of their location and characteristics and how man has adjusted to the world climates.

In developing and giving meaning to the world climatic pattern, the distribution of people on the earth is studied and certain relationships between population density and the physical environment should be noted. Maps of distribution of land and water forms, the ocean currents, distribution of rainfall and of world wind belts and other world patterns are used. As man's ways of living and the characteristics of these climates are studied, the interrelations of the various world patterns, both human and physical, are noted. Thus, thru use, these world patterns become a part of the student's mental equipment.

World Pattern of Industry and Trade

The pattern of man's occupations or the pattern of world industry and trade is another world pattern of great functional value, if properly taught. Industry, whether farming, dairying, manufacturing or any other, is global today. The cattle rancher of Argentina, the African farmer gathering oil palm nuts or raising peanuts—each one feels the effects of the chaotic condition of world trade since 1945. The mining industry responds almost overnight to the discovery of new mineral deposits or the exhaustion of a valuable ore body. The interdependence of all manufacturing

is so well known that it is commonplace. The trouble spot, tho, is that the majority of the ties which bind industry and trade are so complex and hidden that the average person is unaware of them. His ignorance results in a feeling of frustration when his means of livelihood is upset as a result of events in some distant part of the world. The farmer understands drought, tornadoes, or floods, which strike directly, but he does not understand what has happened when, for instance, Brazil and other countries become exporters of cotton and the price of cotton declines.

A miner sees the exhaustion of a mineral deposit and understands the direct result, but he does not understand the closing of a mine when it comes as a result of the discovery of a richer or more easily mined deposit in a distant place.

The complex ties which bind almost any manufacturing industry to mining, agriculture and other industries in many parts of the world are difficult to see and understand. Not all such ties can be traced but those of a few basic industries should be developed.

From a course in economic geography the high school student should become acquainted with such world patterns as:

1. population distribution;
2. basic occupation pattern;
3. natural resources—forests, minerals, etc.;
4. transportation—communication (ocean, land, and air).

He should gain a realization that his work, no matter what it is, is dependent upon other peoples' work and conditions in many other parts of the world. In other words, he is a part of the world economy. Industry is on a world wide basis today. Consequently, the worker must have some understanding of these global patterns.

World Political Pattern

An understanding of the world political pattern is of great importance today because governments are taking such an active part in industry, trade and transportation. The kind of government a nation has affects directly the economic life of the nation. Also as time-distance has shrunk, nations are drawn closer together and the danger of misunderstandings and so-called "incidents" leading to war are more likely to occur. Ties of race and nationality are world wide as national groups have spread over the world, complicating political conditions in many countries. People of a nation are more critical of others than formerly. Criticisms sweep around the world via radio and newspapers—some of these criti-

cisms are unthinking, some due to ignorance, some are deliberate. Nations respond quickly as their national pride is hurt. If greater cooperation among nations is attained, it must be based on a sympathetic understanding of and appreciation of the problems, ideals and traditions of others. Prejudice and narrowness must be overcome. These can be overcome, altho the task is slow and difficult. A well-taught course in the geography of nations is *one* means of accomplishing this task. In such a course the geographic foundations of a nation should be studied, and the effects of the natural environment—size, location, climate, mineral resources, etc., upon the development of the national pattern of the nation, also the people, the distribution of people, of industry and other man-made patterns, and finally how the nation fits into the world political pattern.

The development of these world patterns must be kept on the high school level. They can be of sufficient depth as to give the high school student an understanding of the modern world and provide him with a "frame of reference." Of course, these patterns must be taught as dynamic patterns. But the student must gain a realization that today we live in a completely occupied world. Consequently, our geographic orientation and outlook must be world wide—our world includes the whole earth. We must develop in the high school student an awareness that the whole earth is now one indivisible if man and his culture are to survive.

ADVENTURE IN GEOGRAPHY IN SECOND GRADE

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We really did study Geography—all forty-two of us in the Second Grade. We began in a small way, but interests developed, one out of another, until we spent parts of the entire school term in such an enjoyable way that we intend to repeat it another year.

Only those characteristics of geography which could be adapted to second grade thinking were used. There were selected only those observations that might conceivably become a part of the pupil's foundation for future work in his geography classes, or those that might carry over into the next grade as on-going experiences. This study was really only a direct labeling of geograph-

ical terms, and facts, and causes, and effects, as related to our daily living in the school environment, with which environment, the children needed to be made familiar. However much we believe that the correct terms should always be used in their proper places, the word "geography" never even entered the picture.

In the first grade, experiences are so new that the average child's life is primarily composed of anything that happens in, or has to do with, his room and his group. By the time he enters second grade he begins to look farther afield. In our own situation we do considerable directing toward the end that a child may "see" what he looks at! Since we have extensive grounds and varied terrain we have excellent opportunity for an "Adventure in Geography." We make use of every contour of our sixteen acres, however small; for to the primary child all such assume significant proportions—as we ourselves can witness in re-visiting a childhood scene.

It is surprising just what teaching mediums the immediate environment has to offer. We have, for instance, a series of very small *gullies*. These were caused by *erosion* over a filled-in portion at the *western boundary* of the playground. Our *southern* boundary is the highway. *Extending* across the *eastern* boundary is a small *body of water* which must be a *lake* since it has no *outlet* nor obvious *inlet,* but is *located* on *low* ground, and while it almost disappears in very *dry weather,* it may possibly be fed by a *spring* or small *underground stream,*—or could it be the result of an arrangement of *rock strata?* We discuss this in detail.

Our *northern* boundary contributes a *hill* with a man-cut *bank* on one side and a gentle *slope* on the other. The bank provides a study in *soil.* Near this portion but *centrally* located, there is a natural *swampy* spot. Otherwise, the *surface* of the playground is *level,* with plenty of sweep for *winds* that may come from any *direction.* When we lie down on this grassy meadow we can imagine that we are on the *Great Plains,* about which we read in our second grade basic reader.

We learn that North, South, East and West are directions, and that directions are truly told by *compass.* Here, we are learning something that we will meet again toward the end of the year in "Neighbors on the Hill."

We learn that boundaries are fixed by *surveying.* In February, stories of George Washington recall this information. In connection with boundaries, maps of the United States had to be

introduced, as our blackboard sponge brought us into a discussion of Florida.

As we mentioned before, this study continued thruout the entire school year. We began it by *exploring* our own room. We drew *picture maps* of the room and later replaced the pictures with symbols. Our interest spread to other parts of the building, and naturally arrived at the roof, which was a study in itself. It is flat and covered with slag. It holds chimneys, ventilators, radio antennae, etc.

Since all of us could not go up on the roof, we chose two boys to represent us. We planned their *excursion* for them, asking them to report on the things that we ourselves might have expected to see. Our principal, Mr. Bankes, and our engineer, took the boys up. As Mr. Bankes knew the purpose of the visit he encouraged the boys to ask questions, and unobtrusively guided their interest. Upon their return we listened to their report, and asked many questions. The boys put a map of the roof as they remembered it, on the blackboard.

To supplement this, a moving-picture panorama of the countryside as seen from the roof was taken and shown in the classroom. We then visited each point of interest on the playground and drew maps of what we had seen. We re-visited the playground, compared, and then revised our maps where necessary.

As a final gesture, and because the flag on the front lawn inspired it, we made a ribbon recording along the line of good citizenship and played it back to our parents at a last-of-the-year party.

Altho this material, as given, was necessarily an individual study and of a local nature, it can be adapted to many teaching situations. As there is no place in the primary grades for Regional Geography as such, it naturally follows that a generous integration must needs be made with other phases of work at this level. However, pupils can be given definite teacher-directed activities that point toward geographic thinking. No attempt should be made in any way, to go beyond the second grade child's level of development.

Any science includes, among others, critical thinking and proper evaluation. Children need help in forming a philosophy that leads to a better understanding of others and since there are positive reasons for people being the way they are, how better can this be begun than by investigating the environment or contributing

factors that have such a direct relation to the characteristics of any given group?

Too much can not be said about giving children all the homely experiences possible; about beginning with what is at hand and leading on from there. There is immeasurable satisfaction in watching a child grow and in knowing that you have had a part in that development.

Society needs more mature adults. We can begin, by teaching children that they *must* learn to see and to think for themselves.

A STUDY IN GEOGRAPHY WORLD RELATIONS

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There is considerable discussion today that much of the prejudice, fear, and hatred that exists between nations could be removed if the "Iron Curtain" of misunderstanding could be rent. Some people believe if newsmen, students, and travel accommodations could freely be exchanged between the Soviet Union and the United States that some of the causes for suspicion between these two great powers might be eliminated. As it is, we have scarcely finished one world-wide devastating conflict than indications point to another catastrophe, even more terrible in its implications to the future welfare of mankind.

Geography, which fortunately can be very human in its social implications, is an important means for developing tolerance and promoting understanding between peoples. Altho the ultimate object in teaching geography is to help in producing an enlightened citizenship; the immediate aim is to make people intelligent about lands and peoples of the earth and to implant an abiding interest that will reach beyond school days.[1]

In an attempt to apply the theory in the above geographical aim to actual classroom practice, a course in Travel Geography was instituted in the seventh grade classes just prior to World War II in the Beaver Falls Junior High School, where I was teaching.

[1] Wilcox, Lillian Alice, "An Analysis of Recent Trends in Geography in the Elementary School," unpublished master's thesis, Department of Geography, Cornell University, 1927, p. 1.

Procedures for Setting up the Course

Such standard geography materials as textbooks, atlases, globes, maps, etc., were used as the bases for the course. However, the local community approach to the study of world problems was made in the beginning of the course. Railroad, bus, and airline time tables were studied, a skill often neglected in school, and distances and times involved in travelling to the west coast, the point of embarkation, were estimated. This procedure integrated the significance of mathematics in the understanding of geography. In addition, the significant contributions of the various regions thru which the imaginary route would take the students was studied briefly, contributing a basis for the study of our other world neighbors.

The students and teacher working together planned the world tour. Sample passports were made in the commercial department of the high school, modeled after those brought in by children whose parents had been abroad. The "travellers" left San Francisco and vicariously visited: Hawaii, Japan, China, Australia, East Indies, Southeastern Asia, Near East, Latin America.

Literary license was used in planning the tour. Nations particularly significant at the time, and whose relations with the United States were most important, were selected for visitation. As much as possible, a logical route was followed and when the countries or regions themselves were being studied, steamship posters and ship models were displayed in the room.

Sources of Materials

However, the materials that did more than anything else to add realism to the course were those that were received from the various officers of the American Consular Service. Permission may not have been necessary, but was secured, to write to these various officers scattered in the "four corners" of the world. These names were secured from the State Department, Washington, D.C., and you can imagine the learning activities involved when the students wrote a letter to Walter A. Foote, for example, the American Consul in Batavia, Java. Practical letter writing, a rush to the world map to locate Batavia, and a growing conception that flesh and blood men in distant parts of the world carried on what many had thought were mechanical features of government were but a few of the useful outcomes in this phase of the program. Some

thirty consuls were contacted, as well as the foreign embassies in Washington, D.C., and the world began to flow into the somewhat shabby classroom.

However, the flood really began when the letters and packets, stamped with wax government seals, arrived in a steadily mounting stream. The officers of the Consular Service were most generous in both the time and materials that they sent, and, indirectly taught a warm civic virtue—that our government is human. Pamphlets, maps, posters, cards, books, etc., came in what seemed an unceasing procession.

USE OF MATERIALS

These were catalogued and their color added life to the study of the nations in our itinerary. Reports were based on the pamphlets, posters and maps were displayed, and a variety of individual projects were started, including the making of a stamp album containing stamps taken from the letters received and picture albums using excess materials received. In one corner of the room, a wooden screen, made by some of our boys and then stained, was covered with steamship labels, advertisements, etc.

Several of the teachers from English and Business and other departments who had travelled and lived in Mexico and Iraq brought their accumulated curios to class and explained them to the curious students. In this way, closer cooperation was developed between the departments and these teachers had an increased personal significance in the eyes of the students.

In addition to the various media already mentioned which brought the world much more closely to the geography classroom, one of the most important ones was the letter writing project carried on in cooperation with the English Department. In each of the letters sent to the American Consuls, a request was made that the names and addresses of schools with which we could correspond be sent to us. The replies were most encouraging and included eleven in Asia, four in South America, and the same number in Central America. It was never possible to correspond with all these schools but gift boxes, containing pictures of the class, the school paper, scenic folders, etc., were sent to St. Andrew's in Singapore and similar gifts were received in exchange. Other schools with whom we exchanged letters were located at Nagasaki, Japan; La Ceibe, Honduras, and Valparaiso, Chile. It was always a banner day when a letter arrived, depicting life as a youngster

saw it in some far-off place. Strangely enough the way he lived did not seem too different from living in the United States of America, and hence there was engendered an interest in these other people and a tolerance toward them.

CONCLUSION

World War II has been over now for several years, but the curtain of suspicion hangs heavy, and is charged with the lightning of future dangers. If the more practical Travel Geography courses are planned, and in the spirit of tolerance executed, perhaps it is not too late to do some good-will toward others and receive it in return. I know it helped my students and it may aid yours in a better understanding of the fact that we are all children of one God. If this truism is planted well, it may be that the day will come when "men will war no more."

THE AERIAL PHOTOGRAPH: A KEY TO THE CULTURAL LANDSCAPE

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INTRODUCTION

A survey of recent geographical literature suggests that the aerial photograph, altho widely used in many fields of investigation, has been comparatively ignored in geographical research as a primary source of information concerning the cultural landscape. The use of the photomap by the intelligence agencies of many nations during the past thirty years, and the comments and observations of a few geographers, have led to the conclusion that a significant amount of the information and data usually obtained by time-consuming and expensive field investigation might be more economically derived from aerial photographs.

SOME SUGGESTIONS AS TO THE USE OF AERIAL PHOTOGRAPHS

There are undoubtedly many ways in which air photos may be profitably utilized by the geographer. Trewartha[1] has suggested their employment, with limitations, in the study of farmsteads.

[1] Trewartha, Glenn T., Some Regional Characteristics of American Farmsteads; *Annals Assn. of Amer. Geogrs.*, Vol. 38, 1948, pp. 169-225.

Joerg[2] has indicated that, since American cities are characterized by rapid and frequent change, the air photo may be used in the study of urban geography in this country. Light and Light[3] have presented a number of excellent pictures which graphically illustrate variances in forms of human occupance.

The above-mentioned only hint at the potentialities of this method applied to cultural geography. For example, the distinctive characteristics of buildings which serve different purposes appear plainly on the air photo, suggesting its service as a guide to the division of settlements into functional areas. Many new use patterns become visible to the observer, and once identified may be readily located in other, less accessible, areas. Photographs of a settlement taken at intervals over a period of years strikingly delineate changes in form and function, indicate the presence of new industries, and reflect directional tendencies of expansion. The increased employment of the air photo will doubtless reveal many more of its capabilities.

Reliability of Information Obtained from Aerial Photographs

The accuracy with which the air photo may be interpreted is of necessity limited by the skill and experience of the observer, and by his familiarity with the area under consideration. The photographs may, in most cases, be considered reliable for studies such as those mentioned in the preceding paragraphs, which involve general rather than extremely detailed interpretation, and for the compilation of data.

Cultural objects, appearing in their true form, are readily identified as to general character, tho their specific nature may be indeterminate. This difficulty in acquiring detailed information is a deficiency which is always present, tho it may be minimized by practice and by study of the various excellent guides to photo interpretation now available.

Availability of Aerial Photographs

Fairly recent photographs of the greater portion of the United States may be obtained thru the services of the Production and Marketing Administration, which maintains film libraries in Wash-

[2] Joerg, W. L. G., The Use of Airplane Photography in City Geography; *Annals Assn. of Amer. Geogrs.*, Vol. 13, 1923, p. 211.

[3] Light, R. and Light, M. U., Contrasts in African Farming, Aerial Views From the Cape to Cairo; *Geogr. Rev.*, Vol. 28, Oct. 1938, pp. 529-555.

FIG. 1

ington, D.C., and Salt Lake City, Utah.[4] Most county seats over the country make index mosaics available, enabling those interested to select the desired coverage.

The photographs may be had in various scales, the cost depending upon the size and scale of the reproductions, and the number of prints required.[5]

[4] Inquiries may be directed to the Chief, Aerial Photographic and Engineering Service, P.M.A., U. S. Department of Agriculture, Washington 25, D.C.

[5] The Bureau of Census makes use of photos at scales of 1: 20,000 (3" equal 1 mile) and 1: 8,000 (6" equal 1 mile). These scales are considered adequate for most purposes.

RELATIVE MERITS OF MAPS AND AERIAL PHOTOGRAPHS

In some respects aerial photographs are superior to maps, and in others inferior. They excel maps in that they are usually more recent, contain much more detail, can be quickly prepared no matter how difficult the terrain, and the objects shown are portrayed in their true shape and appearance, rather than by conventional signs and symbols.

On the other hand, it may be difficult to determine relief, marginal data are usually incomplete, and distances and directions may not be exact. The latter objection, however, is not believed to detract from the value of the photograph, at least as far as the cultural landscape is concerned. Errors of distortion in the photographic processes are usually negligible, and the techniques of aerial photography are constantly being improved thru the development of better cameras, film, and methods of control.

A COMPARISON OF THE VERTICAL, THE OBLIQUE, AND THE STEREO PAIR

The stereographic photo pair, the use of which has been described by Raisz,[6] is considered the most effective of the three primary types of aerial photo: the simple vertical, the oblique, and the stereo pair. The overlapping photographs viewed thru the stereoscope reveal not only those features seen in the vertical, but also give the observer a much clearer picture of the relief of an area and the relative heights of all visible objects. In view of these qualities the latter-named type of photograph is considered most valuable to the geographer.

The oblique may be used in the study of detail in small areas,[7] especially in the case of very small settlements. However, such photos are not generally obtainable.

AN EXPERIMENT IN THE USE OF AERIAL PHOTOGRAPHS

In pursuing the study of settlements it is frequently necessary for the geographer, in order to determine the number and nature of functions served by a particular settlement, to divide that settlement into functional areas. During investigation of the potential capabilities of aerial photographs as applied to the study of cultural landscapes, an attempt was made to delimit the functional

[6] Raisz, E., *General Cartography;* 2d ed., McGraw-Hill Book Co., Inc., 1948, pp. 189-190.

[7] Hart, C. A., *Air Photography Applied to Surveying;* Longmans, Green, and Co., 1940.

areas of three Louisiana towns, using as sole sources of information air photos and topographic maps. A field check of the results proved the bounds and nature of the various areas so determined to be quite accurate.

In addition to the location of functional areas, which included commercial or business districts, white residential areas, Negro residential areas, industries and their nature, schools and other

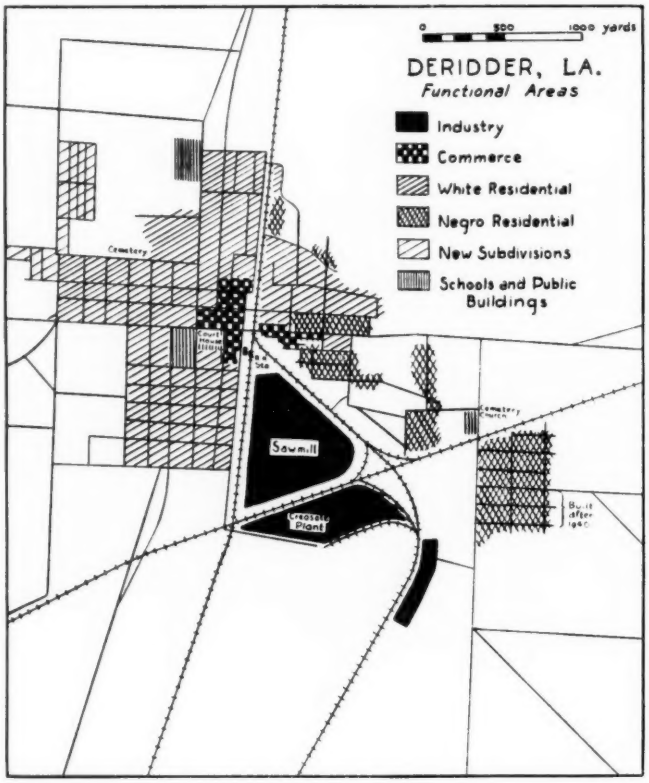

FIG. 2

public buildings, and new subdivisions, an attempt was made to locate and classify a number of individual features. This also proved generally successful, altho the only error of interpretation during the study occurred in this connection. Field investigation showed a building in Leesville, interpreted as a dance-hall or "drive-in," to be in actuality a warehouse (Fig. 3).

It may be of interest to note that in one case the field check

revealed a service station located at a point at which a hotel was seen on the photo (Fig. 4). Upon being questioned as to how long the station had been at that location, the attendant replied: "About seven months. There used to be a hotel here, but it was torn down not long ago."

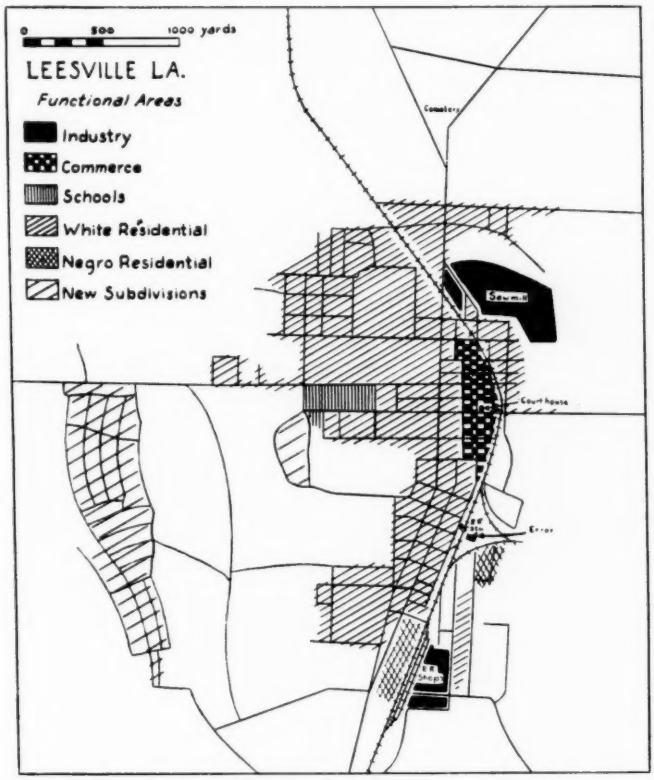

FIG. 3

METHOD

Stereographic photo pairs, made in 1940 and having a scale of 1:20,000 were first obtained, the coverage including one town, Winnfield, Louisiana, which was known to the writer, and three unknowns: DeRidder, Leesville, and Oakdale, Louisiana. From these photos base maps of the latter three towns were prepared, and their functional areas delimited. The photographs of Winnfield, the known quantity, were used as a key to the interpretation of the other photos.

Next a series of photomaps prepared in 1944 and covering the same group of settlements was studied, and the locations of new subdivisions settled during the war were noted.

As a further check on the potentialities of the photographs, the stereo pairs were again studied in an attempt to locate and classify

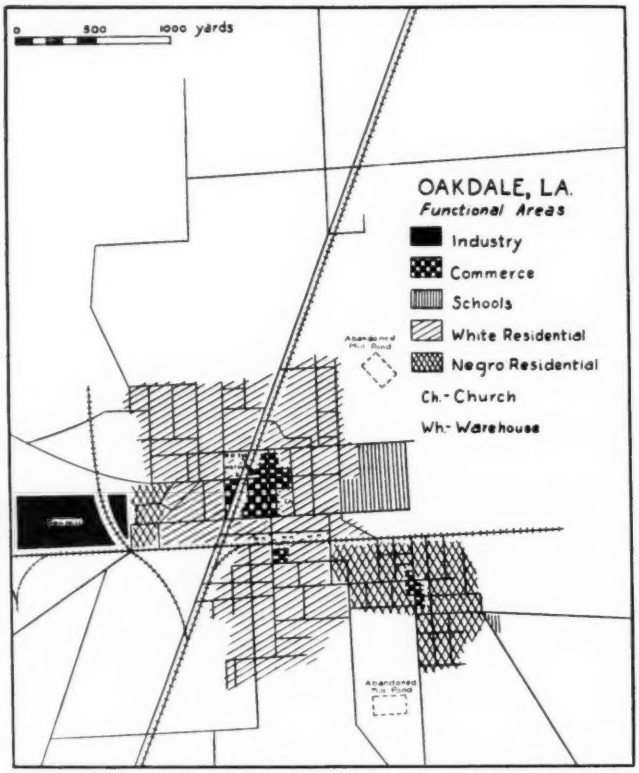

FIG. 4

a number of smaller, less prominent, features, such as churches, cemeteries, warehouses, and railroad stations.

The fourth step involved a comparison of the maps thus prepared with topographic maps of these settlements, which served to confirm the nature of a number of features already identified. In only one case did the topographic map yield additional information. Two rectangular forms appearing on the photos of Oakdale could not be identified. The topographic map indicated that they were water bodies, and on this basis they were interpreted as millponds

which remained after the sawmills they served had been moved. This was correct.

Finally, a field investigation of each settlement was made in company with a number of disinterested persons, during which the maps were checked for accuracy. The only error of interpretation has already been described.

LOCATION OF FUNCTIONAL AREAS

Each of the functional areas considered in this study exhibited certain prominent features which set it apart from its surroundings. Using the photographs of a settlement known to the writer as a key, these characteristics became criteria to be applied to similar areas in the unknown settlements.

Industrial areas were easily discerned, since the buildings are characteristically large, dark in tone, and are generally situated adjacent to transportation facilities. The nature of the industry may, in many cases, be derived from a study of the plant itself and its immediate surroundings. In this case sawmills were identified by the presence of lumber stacks, millponds, and logging roads. The creosote plant at DeRidder (Fig. 1 and 2) was revealed as such by the characteristic long, low, narrow buildings, in which are situated the tanks used in the treatment of timbers, and by the lumber stacks in the vicinity.

The commercial or business section of a settlement is usually characterized by its location, generally in or near the center of the town, the buildings appearing close together or having common walls, the latter making them quite distinct from residential areas, as does the general scarcity of trees.

Areas devoted to residences are normally recognized by smaller buildings spaced varying distances apart; still smaller outbuildings, such as garages; and the presence of scattered trees. Those areas occupied by whites almost universally exhibit better living conditions than are to be seen in Negro sections. The dwellings of the latter are crowded together more closely, are smaller, have fewer trees, poorer streets, and as a rule are found near those districts occupied by industrial plants.

Schools appear as buildings of considerable size, the most distinctive characteristics being the absence of grass on the adjacent playgrounds, and the presence of athletic fields. Other public build-

ings may often be recognized by their relative isolation from other structures in the business district, and by the landscaping of their grounds.

In determining the character of individual buildings the factors of location and association as well as size and shape must be taken into consideration.

Conclusion

As a result of the foregoing study, the opinion is held that aerial photographs make available to the geographer a means whereby the cultural landscape may be studied with greatly reduced expenditure of time and money. The stereographic photo pair, supplemented by the topographic map, is particularly well adapted to the study of settlement patterns, especially those studies of a more general nature, not involving extremely detailed interpretations.

Familiarity with the particular type of cultural landscape under investigation is highly desirable, tho not absolutely essential. Such familiarity materially reduces the margin of error in interpretation, and facilitates the recognition of individual elements of the cultural pattern.

In the event that further and more detailed information, requiring field investigation, is desired, the time needed to satisfactorily complete such investigation will be materially reduced by a careful photographic study made prior to going into the field.

EDITH PUTMAN PARKER RECEIVES THE DISTINGUISHED SERVICE AWARD IN GEOGRAPHIC EDUCATION*

The Distinguished Service to Geography Award was made to Edith Putman Parker, University of Chicago. Miss Parker has rendered distinguished service and leadership in geographic education for over a quarter of a century, and her services have given added dignity to her chosen field. She has exerted leadership in the field thru inspirational teaching, scholarly publications, activity in organizations working for continued development of in-service teachers, and pioneer research in geographic education.

Thru her inspirational teaching which includes and permeates all levels from the elementary thru the university to the adult, she has demonstrated superior teaching ability, and illustrates what may be accomplished by devoting a lifetime to teaching.

* Because of sickness, Dr. Mary Jo Read, Chairman of the Distinguished Service Award Committee, was unable to attend the annual meeting. Dr. Thomas Barton, Indiana University, was asked to write and read the citation.

Her experience has continued thruout a period long enough to reveal the permanent value of the influence exerted.

During the recent war, when the unprecedented need arose to provide maps in vast quantities for the armed forces, she planned and directed an intensive course of training in twenty colleges to prepare young women for the work of supervising map-making.

People not fortunate enough to have studied in her classes, have grown in geographic stature thru contact with her publications. Her leadership in geographic education first attained national attention in the early 1920's thru her part in preparing a revolutionary series of elementary-school textbooks in geography. She has also stimulated geographic thinking thru numerous professional articles and the editorship of a series of maps and charts.

She has exerted leadership thru active participation in the work of organizations which aim to secure better teaching of geography. You are familiar with her worthy contributions to our programs and with her services as our president, associate editor of the JOURNAL OF GEOGRAPHY, and as a builder of our organization in many ways. You know of and appreciate the large part she took in the preparation of the *Thirty-Second Yearbook of the National Society for the Study of Education on "The Teaching of Geography."* Her contributions to Part IV of *Report of the Commission on Social Studies* and to the *Nineteenth Yearbook of the National Council for the Social Studies* on *"Geographic Approaches to Social Education"* have been milestones in educational geography.

Constant, steady endeavor to advance the frontiers of research in geographic education has been one of her life-long goals. She has opened an entirely new division of geographic research, namely, the geography of education. Thru her seminar, she has directed graduate-student research in this field at the doctorate level.

By these and many other activities, Miss Parker has proven herself to be a great builder in the field of geography. In this, her chosen field, she has repeatedly demonstrated her originality, her keen insight, her resourcefulness, and her many other talents. She has given dignity and respect to the terms "geographic education" and "educational geographer." By conferring the Distinguished Service Award, the highest honor which the National Council of Geography Teachers can bestow, on Miss Parker, the committee is also honoring the National Council of Geography Teachers.

Committee: Harry O. Lathrop, Alisen Aitchison, George B. Cressey, J. Russell Whitaker, Earl B. Shaw, M. Melvina Svec, and Mary Jo Read, Chairman.

JOURNAL OF GEOGRAPHY PRIZES

In January, 1947, we had the pleasure of announcing a series of prizes, to be awarded to contributors of outstanding articles that have appeared in the JOURNAL OF GEOGRAPHY. These prizes are made possible by the generous contribution of one of America's eminent geographers who insists on remaining anonymous. The donor is convinced: 1) "That the fine service contributed over the years by the editors of the JOURNAL merits far more recognition than it has received. These prizes honor them. 2) That the receipt of the prizes by the authors of the articles judged best will encourage these authors and other authors, with the result that additional excellent manuscripts will be offered for publication in the JOURNAL. 3) That public recognition of worthy achievement will help not only those who receive the recognition but also those who participate in any way. Indeed the public will think better of geography and of the JOURNAL when it learns of these prizes." Under the terms of the gift the President of the National Council of Geography Teachers is directed to appoint committees to make the award. The Presi-

dent is *ex officio* a member of each committee. Eight awards have now been established in honor of the following: Richard E. Dodge, Ray H. Whitbeck, George J. Miller, J. Paul Goode, Almon E. Parkins, Ellsworth Huntington, Isaiah Bowman, and Cora P. Sletten. Each recipient receives an award of twenty-five dollars.

Isaiah Bowman Prize, 1949

Dr. Bowman was formerly Director of the American Geographical Society, President of Johns Hopkins University, Editor of the Journal of Geography, Chairman of the National Research Council, President of the Association of American Geographers, and served as a consultant for the federal government and as an official representative on many occasions. The prize in his honor is "for an article dealing with political geography, South America, or Pioneer Regions." The prize was awarded at the recent Cleveland meeting of the National Council to Dr. J. W. Coulter, now serving with the United Nations, for his article entitled "The United States' Trust Territory of the Pacific Islands" which appeared in October, 1948.

Cora P. Sletten Prize, 1949

Cora P. Sletten is Professor of Geography, State Teachers College, Mankato, Minnesota, a former President of the National Council of Geography Teachers, and Assistant Editor of the Journal for twenty-three years. She has been a constant contributor to the work of the National Council and the Journal and to the advancement of geographical education. The prize is "for a paper by a woman or for three or more reviews by the same author." The prize was awarded at the recent Cleveland meeting of the National Council to Villa B. Smith, Cleveland, Ohio, for her article entitled "The Bulk Freight Trade of the Great Lakes" which appeared in October, 1946.

Prizes for 1950

Two prizes will be awarded in 1949 for outstanding articles published in the preceding five years in the Journal. The Richard E. Dodge prize is for an article "dealing with some influence upon mankind of some aspects of physical geography, judged to have been helpful to the largest number of Journal readers." The Ray Hughes Whitbeck prize is for an article "dealing with some influence upon mankind of some aspects of economic geography."

The staff of the Journal wishes to again take this opportunity to express its great appreciation of the generous gift which has made the awarding of these prizes possible.

NATIONAL COUNCIL AT WORK

The National Council is fortunate to have Miss Ina C. Robertson, State Teachers College, Valley City, North Dakota, accept the chairmanship of the important "Committee on Standards of Teacher Preparation and Certification." Other committee members will soon be chosen and committee work will be under way during 1950.

The "Committee on Preparation of Bibliographies and Lists of Maps" has been one of the active committees of the National Council during the past year and a summary of their 1949 report follows:

Three projects are under way: a list of sources of maps for educational use; a list of materials useful in map activities; and a bibliography on the use of maps in geographic education.

We have completed an annotated bibliography of all articles on maps and their use that have been published in the Journal of Geography, from 1922 to October 1949. In addition, the articles on these topics that have appeared in other magazines in recent years have been listed and many examined. Work remaining includes an examination

of these materials and the difficult problem of selecting those references that will be of greatest value to teachers.

Altho not a part of our assigned task, we plan to analyze the topics treated by the articles in educational magazines. The survey has made us conscious of a need for more articles on maps and their uses in the JOURNAL OF GEOGRAPHY and all other magazines that reach teachers.

The committee expects to turn the materials compiled over to the Publications Committee within the next few months.

MARGARET CHEW
GEORGE CORFIELD
KATHERYNE T. WHITTEMORE, *Chairman*

Your president wishes to thank all committee personnel, all officers, and all others who contributed to the work of the National Council during the last year. He is especially grateful to the many who worked so hard and gave so much thought and effort for the success of the 35th Annual Conference. The future of the National Council of Geography Teachers as a working organization will show great progress with a continuance of such splendid cooperation.

EARL B. SHAW, *President*

EDITORIAL NOTES AND NEWS

During 1949 scientific geography and geographic education suffered a great loss by the passing of four eminent leaders. Dr. Wallace W. Atwood, former President of Clark University, founded the Clark Graduate School of Geography. Dr. Elmer Eblaw helped establish and for years edited *Economic Geography*. Mark Jefferson started more men who became outstanding geographers than any other American geographer except William Morris Davis. Dr. O. E. Baker established the Department of Geography at the University of Maryland and gained world renown as an agricultural geographer. All of these men were inspirational teachers; fatherly advisors to potential professional geographers; careful research workers; and each contributed much to the geographic literature of our times.

The new England Geographical Conference took its fall Field Trip on October 1 and 2, 1949 in the Hanover area. Planned and conducted by the Dartmouth geography staff (Trevor Lloyd, Van English and Albert Carson) the trip included Wilder Dam on the Connecticut River, Mooselauke Ravine, Lost River, Franconia Notch, Cannon Mountain, and Weirs on Lake Winnipisauke.

The soy bean has made a rapid growth as a commercial crop in the United States. At the turn of the twentieth century only a few thousand bushels were grown in the United States. Now nearly eleven million acres are planted to this crop and the annual production is about two hundred million bushels.

Will a tunnel be constructed under the Strait of Gibraltar to connect Europe with Africa? Survey work has been resumed on this fifty-two year old project. Such a project would complement the recently resumed Cape-to-Cairo railroad project and provide a supply line between the two continents free from the submarine menace and less exposed to atomic bomb attack.

In 1948 the United States received most of its manganese ore from the Soviet Union, the Union of South Africa and Brazil.

Do geographers in the United States have a list(s) of any large-scale, published or unpublished, objective scientific researches on the teaching of geography in the schools? In October, 1945 the Geographical Association in the British Isles received a letter from the Professor of Methods of Teaching Geography in Moscow asking for an account of all objective scientific researches on the teaching of geography in the schools of the British Isles. Professor N. V. Scarfe provides "a list of all the known scientific researches with a short review of the contents and conclusions of those that have appeared in print" in an article entitled "The Teaching of Geography in Schools: A Review of British Research" published in the June, 1949 issue of *Geography*.

The Northwest Ohio Section of the Ohio Council of Geography Teachers sponsored a sectional program at the Northwestern Ohio Education Association's meeting. Lyle R. Fletcher, Bowling Green State University, Bowling Green, read a paper entitled, "Need for an Adequate School Curricula and Teacher Training Program in Geography for Understanding the Position of the United States in World Politics" and a film, "Green Harvest" was previewed.

The airplane may become an efficient and economical forestry tool. During the winter of 1948 an airplane was used in a reseeding test made on a burned area in York County, Maine. The white pine seed was mixed with from three to ten times its bulk in sawdust and scattered by the plane upon a blanket of snow. First seed counts show fairly satisfactory results. The airplane is also being used in spraying tests.

Whitehorse, the largest settlement on the Yukon River system, has been selected as the base for the combined United States and Canadian joint defence maneuvers this winter. Whitehorse is sometimes called the transportation crossroads of the upper Yukon because: 1) It is at the head of navigation on the Lewis-Yukon river system; 2) It is the northern terminus of the White Pass and Yukon Railway; 3) The Alaska Highway skirts the town; 4) Airplanes from Fairbanks, Seattle, Vancouver and Edmonton use its airport.

GEOGRAPHICAL PUBLICATIONS

E. W. Shanahan. **South America, an Economic and Regional Geography with an Historical Chapter,** seventh edition, revised, 318 plates, E. P. Dutton and Co., Inc., New York, 1948, $4.00.

This is a short treatment of South America, now in its seventh edition, the first having appeared in 1927. Of the twenty-two chapters, six provide a general picture of the physical framework, climate, settlement, communications, plantation agriculture and general economic conditions of the continent. The other chapters treat the regionality of the area. Fifty-one maps and diagrams supplement the text, altho some of them are little more than sketch maps. A new map showing air routes in operation has been added, but there appears to be no other significant addition to, or alteration of the preceding edition, hardly enough to be classed as a revision. Secondly, the bibliography has not been brought up-to-date. It contains only one item published since 1940, and only three that were published later than 1933.

The text, despite its brevity, is reasonably thoro and is quite readable. The chapters on Brazil and the Argentine are particularly well done.

ALDEN CUTSHALL

Chicago Undergraduate Division
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